

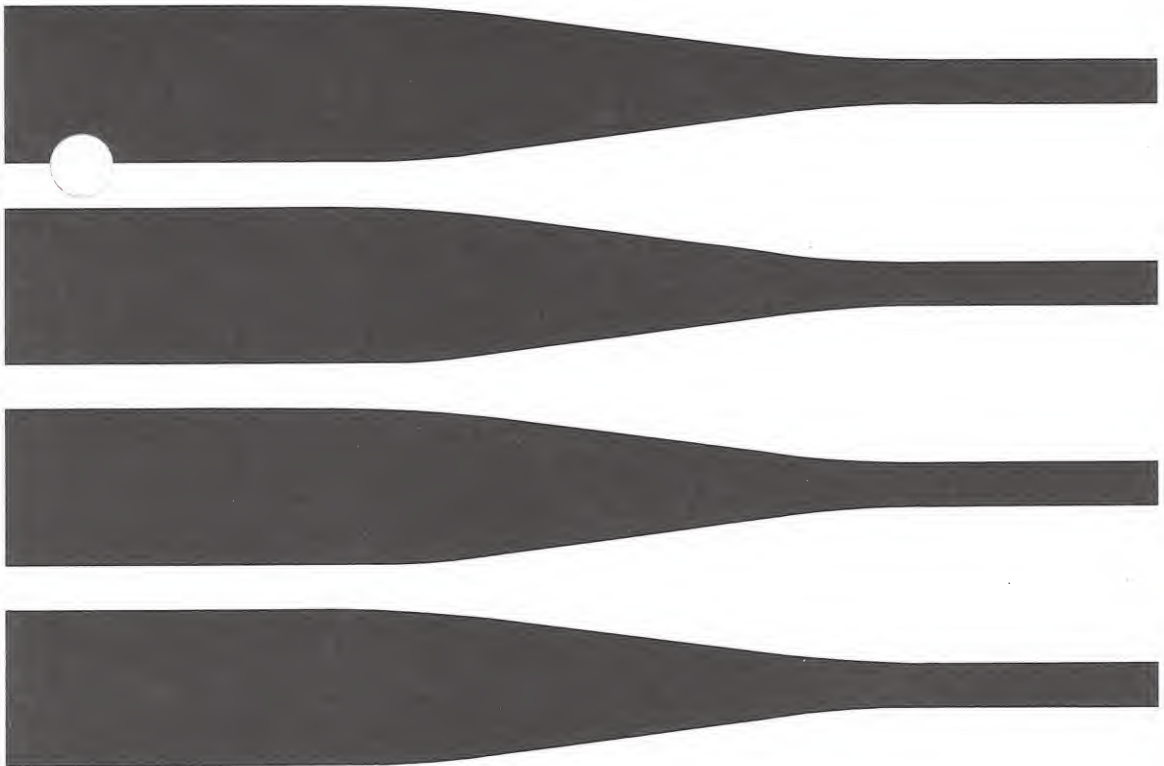


Issue 1  
October 1984

## **AT&T 3B2/300 Computer Random Access Memory Expansion Manual**

Select Code  
305-450

Comcode  
403779580



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- UNIX — Trademark of AT&T Bell Laboratories.

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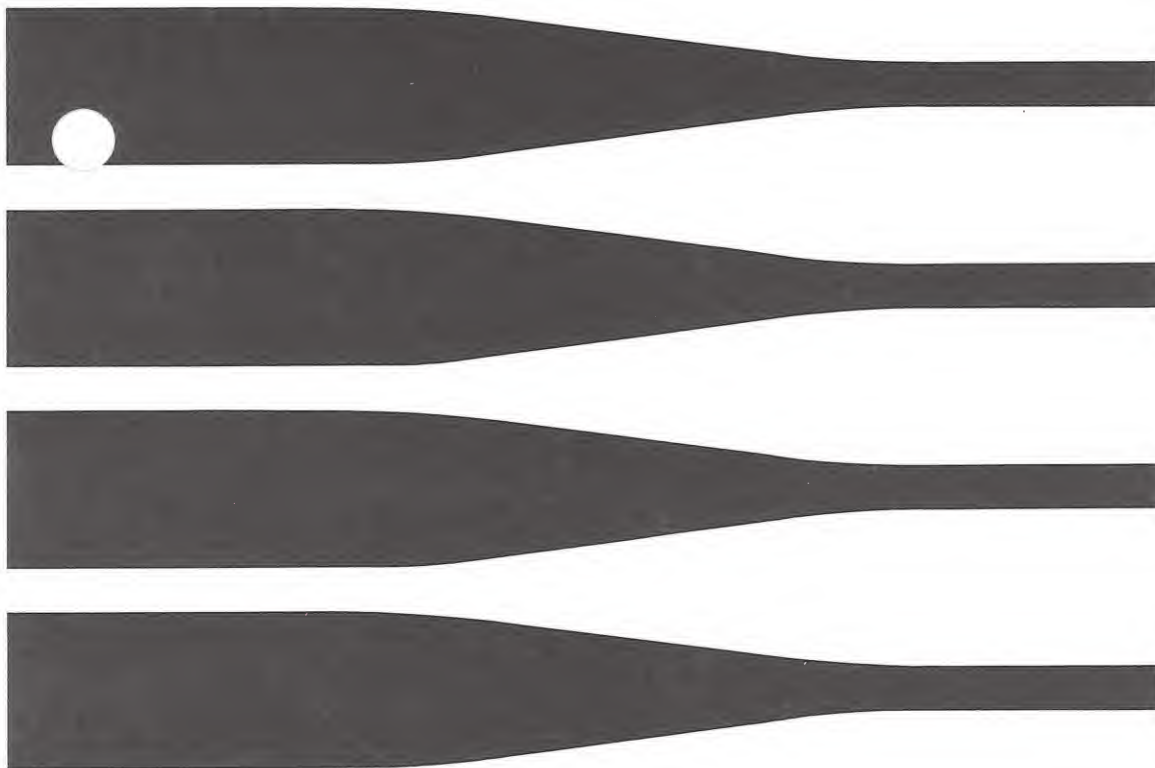


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## **NOTE**

The information in this manual describes one of the options available with the 3B2 Computer. An OPTIONS binder is provided with each 3B2 Computer. Remove this document from its soft cover, place the provided tab separator in front of the title page, and file the material in the OPTIONS binder.

If you ordered extra copies of this manual, they should be left in their individual soft covers.



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**Chapter 2. INSTALLATION**

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# Chapter 1

## INTRODUCTION

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# Chapter 1

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## INTRODUCTION

This manual explains the Random Access Memory (RAM) Expansion feature of your AT&T 3B2/300 Computer. Little experience is needed to install the memory cards.

## FEATURE DESCRIPTION

The RAM expansion feature is an optional 3B2 Computer add-on feature which provides additional main memory. Adding main memory improves the efficiency and power of your computer. This feature consists of add-on 3B2 Computer hardware only. There are no additional commands or software included.

The 3B2 Computer has three possible configurations of main memory:

- 512 kilobytes - which consists of two 256-kilobyte memory cards and is the minimum amount of memory provided with the system.
- 1 megabyte - which is obtained by removing both of the 256-kilobyte memory cards originally furnished with the system and installing one high-density 1-megabyte memory card.

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- 2 megabytes - which is obtained by either replacing the two 256-kilobyte memory cards with two 1-megabyte memory cards, or by adding an additional 1-megabyte memory card in the vacant memory card connector slot of a 3B2 Computer already equipped with 1 megabyte of main memory.

These are the only combinations that are available. There are no further growth provisions for the 3B2/300 Computer.

## MANUAL ORGANIZATION

The remainder of this feature manual is divided into the following chapters:

- Chapter 2, "INSTALLATION," gives you the steps to install and test your feature.
- Chapter 3, "TROUBLESHOOTING," tells you how to clear trouble with your feature.

Refer to your *3B2 Computer Owner/Operator Manual* for a glossary of abbreviations and terms also used in this manual.

## UNPACKING INSTRUCTIONS

The following steps describe how to properly unpack and visually inspect your memory card(s).

1. Carefully remove the memory card(s) from the carton and place it near your 3B2 Computer. The carton should contain the number of memory cards you ordered.

***Caution: While handling a memory card, do not wear any metal rings, and always hold a card by the edges - like a record album.***

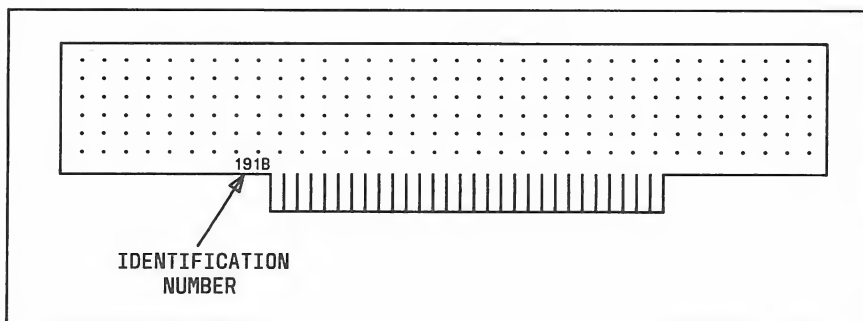
2. Carefully remove the protective packing from around your memory card(s). The contacts have been cleaned and lubricated by the manufacturer and should not require additional cleaning.
3. Inspect each card for any obvious defects (loose components, cracks, etc.).

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4. Verify that the memory card(s) you have is what you ordered by checking the identification number stamped on the back side of the card.
  - The 256-kilobyte memory cards are stamped 191A.
  - The 1-megabyte memory cards are stamped 191B.

The location of the identification number is shown in Figure 1-1.



**Figure 1-1. Location of Memory Card Identification Number**

**Note:** If there is a problem, check your receipt to make sure the correct card was ordered. If there is still a problem, contact your service representative.

5. If any parts are missing or damaged, contact your service representative.

## IMPORTANT REMINDERS

### General

1. Be familiar with your *3B2 Computer Owner/Operator Manual* and this manual **BEFORE** installing this feature.
2. Keep this manual handy in your computer library. Put it with your other feature manuals in your binder for option manuals.

### Safety

1. Be alert for sharp edges when handling hardware.
2. Always unplug your 3B2 Computer before removing cover.
3. Follow instructions carefully to avoid personal injury or equipment damage.

### Hardware

1. Protect your feature hardware from:

Sunlight	Chemicals
Heat	Breakage
Cold	Grime
Static Electricity	

2. Do not disturb other 3B2 Computer hardware.
3. Use tools in the proper manner.





## Chapter 2

### INSTALLATION

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## Chapter 2

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### INSTALLATION

#### PREPARATION

To add the Random Access Memory (RAM) expansion feature to your 3B2 Computer, you must install new memory cards. Estimated time for installation is about 15 minutes, depending upon your experience.

Do the following steps prior to adding any hardware.

- Unpack your feature parts.
- Review the reminders discussed in Chapter 1.
- Obtain a small flathead screwdriver.
- Have your *3B2 Computer Owner/Operator Manual* handy.

Installation will be relatively easy if you follow each step carefully. Before starting, review the installation instructions at least once.

### INSTALLING YOUR MEMORY CARD(S)

Memory cards are designed so they are easy to install. If you have any trouble installing a card, **do not force it**. Make sure that the card is positioned correctly and that you are inserting it into the proper connector. The card will be permanently damaged if you install it backward and apply power to it.

The contacts of your new memory card(s) have been cleaned and lubricated by the manufacturer. Do not clean the contacts before installing.

To install a memory card, perform the following steps:

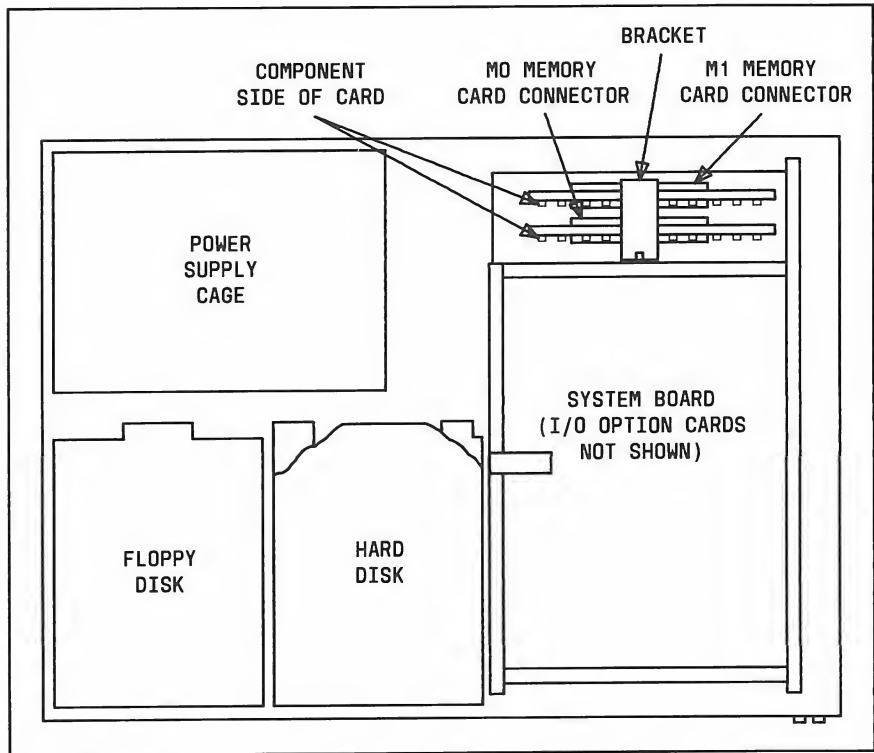
1. Make sure the power is turned off. If the power is still on, execute a "soft" power down by depressing the power switch to OFF. A description of the "soft" power down sequence is given in the *3B2 Computer Owner/Operator Manual*.

***Caution: Never pull the power plug or externally remove power until the 3B2 Computer has completed its "soft" power down.***

2. Push the slide latch up on the cable access door and open the door.
3. Lift the cable door straight up and remove it from the cabinet.
4. Remove the four screws that hold the top cover on the 3B2 Computer.

***Caution: Be sure that the power is off before attempting to remove the top cover of the computer. Data could be permanently lost if the computer is not shut down properly.***

5. Lift off the cover and set it aside.
6. Compare Figure 2-1 to the inside of your 3B2 Computer so you will be familiar with the location and placement of your memory cards.



**Figure 2-1. Inside View of the 3B2/300 Computer**

7. Loosen the screw on the bracket holding the memory cards in place.
8. Slide the bracket up and remove it from the apparatus mounting.
9. Read the following options and determine which one applies to your computer:
  - a. Your computer is equipped with two 256-kilobyte memory cards which are to be replaced with a 1-megabyte memory card.
  - b. Your computer is equipped with a 1-megabyte memory card and another 1-megabyte memory card is to be added.
  - c. Your computer is equipped with two 256-kilobyte memory cards which are to be replaced with two 1-megabyte memory cards.

***Caution 1: Do not attempt to install a 256-kilobyte memory card and a 1-megabyte memory card together in your 3B2 Computer. The computer will not operate properly with this combination of memory cards.***

***Caution 2: Do not install your RAM cards backward or they will be damaged when you attempt to power-up.***

10. Once you have determined which option you have, proceed with the corresponding 10(a), 10(b), or 10(c) to install the new memory card(s). After the memory card(s) has been installed, continue on to Step 11.
  - a. **Replacing two 256-kilobyte memory cards with a 1-megabyte memory card.**
    1. Locate the 256-kilobyte memory cards on the right rear portion of the computer. (See Figure 2-1.) Notice that the component side of the card faces toward the front of the cabinet.
    2. Remove the 256-kilobyte memory card from the M0 connector by carefully holding the card by its edges and slowly pulling the card straight up.
    3. Carefully place the card aside.
    4. Repeat Steps 2 and 3 for the 256-kilobyte memory card in the M1 memory connector slot.
    5. Carefully pick up the new memory card by its edges.
    6. Remove the plastic sleeve which protects the contacts.
    7. With the component side facing toward the front of the cabinet, hold the memory card over the M0 connector. See Figure 2-1 to determine the location of the M0 connector.
    8. Gently push the card into its connector until it is firmly in place.

**Note:** The M1 connector slot should be left empty.

**b. Adding a second 1-megabyte memory card.**

1. Locate the M1 connector on the right rear portion of the cabinet. (The M0 connector should already contain a 1-megabyte memory card.) See Figure 2-1 to determine the location of the M1 connector.
2. Carefully pick up the new memory card by its edges.
3. Remove the plastic sleeve which protects the contacts.
4. With the component side facing toward the front of the cabinet, hold the card over the M1 memory card connector slot.
5. Gently push the card into the connector until it is firmly in place.

**c. Replacing two 256-kilobyte memory cards with two 1-megabyte memory cards.**

1. Perform the steps given in (a) to install the first 1-megabyte memory card.
  2. Perform the steps given in (b) to install the second 1-megabyte memory card.
11. Place the bracket on top of the memory card(s) and slide the bracket down onto the screw attached to the mounting apparatus.
  12. Tighten the screw to lock the bracket in place.
  13. With your new memory card(s) now installed, carefully place the cover back on the 3B2 Computer.
  14. Install the four screws that hold the top cover in place.



15. Place the cable access door back on the computer and lock the slide latch.
16. If you replaced 256-kilobyte memory cards:
  - a. Place the plastic sleeve from the new memory card(s) over the contacts on the 256-kilobyte memory cards.
  - b. Carefully pack the cards and store them in a safe, cool place.
17. This completes the installation of your new main memory card(s).

## TESTING

The only tests performed on the new memory cards are the diagnostic tests which are performed during the normal power-up procedures. Refer to the *3B2 Computer Owner/Operator Manual* for the normal power-up procedures.

If your 3B2 Computer fails the diagnostic tests during power-up, refer to the "TROUBLESHOOTING" chapter in this manual.



# Chapter 3

## TROUBLESHOOTING

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## Chapter 3

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### TROUBLESHOOTING

This chapter on troubleshooting is only useful if your 3B2 Computer was working correctly before you installed new Random Access Memory (RAM) cards and will not power up correctly after installing the new RAM cards.

#### POSSIBLE PROBLEMS

There are only a few problems that could cause the computer to not power up correctly after installing new RAM cards. These problems are listed below:

- The RAM card(s) are not inserted properly.
- The contacts on the RAM card(s) need cleaning.
- The RAM card connectors inside the 3B2 Computer need cleaning.
- A RAM card is defective.
- The problem is not related to the RAM cards.

## PROCEDURE FOR CHECKING RAM CARDS

Before checking your RAM card(s), check for other obvious problems such as: blown fuse, power off on terminal, power cord not connected, etc.

If there are no obvious problems, check your RAM card(s) according to the following procedure.

1. Set the power switch to OFF on your 3B2 Computer and wait for the soft power-down sequence to complete.
2. Remove the top cover of your 3B2 Computer. Refer to Chapter 2 for instructions on removing the cover.
3. Check to see if the RAM card(s) is properly installed. If the card(s) is installed backward or if there is only one card and it is installed in the wrong connector, the computer will not work. (See Figure 2-1 in Chapter 2.)
4. Clean the contacts on the RAM card(s) and the card connectors, using a soft cotton cloth and a solvent cleaner especially designed to clean contacts.

***Warning: Do not use a cleaner-lubricant which contains silicone.***

5. Install the RAM cards according to the instructions given in Chapter 2.
6. Place the cover back on your 3B2 Computer.
7. Power-up your 3B2 Computer according to the procedure given in the *3B2 Computer Owner/Operator Manual*.

8. If your 3B2 Computer will not power-up properly, check for other common problems listed in the *3B2 Computer Owner/Operator Manual*.
9. If your 3B2 Computer still does not power-up properly, replace the new RAM cards with the original RAM cards and try to power-up again. If the computer does power-up properly, the new RAM card(s) is defective.
10. If you still cannot power-up your 3B2 Computer, contact your local service representative.

***Warning: Do not try to repair a RAM card on your own. The card can only be repaired by company authorized personnel.***







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## AT&T 3B2 Computer Options

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## NOTE

This binder can be used to store manuals that are provided with 3B2 Computer optional features. The option manuals come with tab separators and the pages are prepunched for easy filing.

The comment forms in this binder may be used for any comments concerning the 3B2 Computer Option Manuals, Utilities Guides, or Software Information Bulletins (SIB). When commenting on a document, please enter the document title and the six-digit select code on the comment form.

Additional copies of this binder may be ordered. Follow the ordering procedures specified in the *Documentation Catalog* provided with your 3B2 Computer.

